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ART UNIT	PAPER NUMBER
1796	

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05/14/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/595,654	MCGRATH ET AL.	
	Examiner	Art Unit	
	DAVID KARST	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 February 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10,14-20 and 22-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10,14-20 and 22-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 May 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Applicant's response filed 02/04/2010 has been fully considered. Claims 1-10, 14-20, and 22-29 are pending. Claims 11-13 and 21 are canceled. Claims 2-4, 10, 19, 22, 25, 26, and 29 are amended.

Priority

Applicant's claim for the benefit of a prior-filed application under 35 U.S.C. 119(e) or under 35 U.S.C. 120, 121, or 365(c) is acknowledged.

Claim Rejections - 35 USC § 103

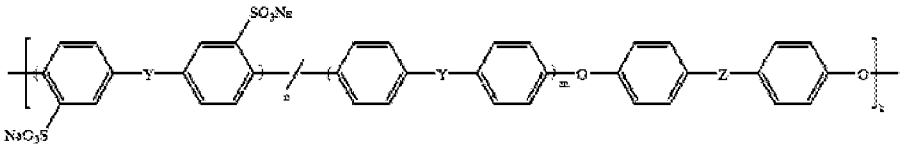
The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

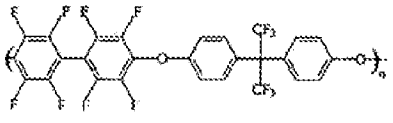
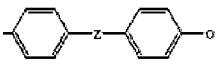
> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

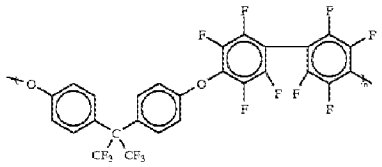
This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-3 rejected under 35 U.S.C. 103(a) as being unpatentable over McGrath et al (US PG Pub 2002/0091225 A1, hereafter McGrath) and further in view of Fuller et al (US Patent No. 5,976,418, hereafter Fuller).

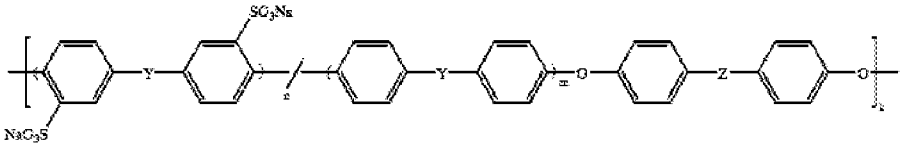
McGrath teaches a multiblock copolymer with the chemical structure  (par. 0044), where Y is $-SO_2-$ (par. 0045), Z is $-C(CF_3)_2-$ (par. 0045), n/n+m ranges from about 0.001 to about 1 (par. 0025), and (n+m)/k = 1.01 (par. 0044), which reads on the claimed chemical structure having the block with the subscript m, where M+ is a positively charged counterion consisting of sodium, and which reads on the claimed ranges of m, n, and m + n, and on b representing connection of respective blocks.

McGrath does not teach that the multiblock copolymer has a chemical structure with the perfluorinated block  since McGrath's multiblock copolymer has the fluorinated segment  (par. 0045; see Z may be, $-C(CF_3)_2-$, par. 0045). However, Fuller teaches a perfluorinated polymer with the

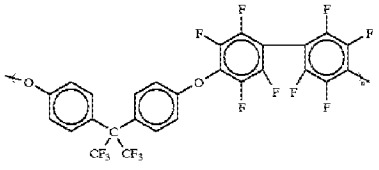
chemical structure  (col. 36, lines 5-15). Fuller teaches that the number of repeating units of this block is 120 or greater than 1 (see n is about 120, col. 36, line 17; see n is >1, col. 9, line 32), which reads on the claimed range of n. Fuller teaches that their polymer is present in a conductive polymeric composition (col. 1, lines 5-7). McGrath and Fuller are analogous art because both references are in the same field of endeavor of polyarylene ether polymeric materials that are fluorinated and that are used in articles where electron flow or conductivity and resistance to oxidation is important. At the time of the invention, a person of ordinary skill in the art would have found it obvious to use Fuller's perfluorinated polymer with the chemical structure shown above to modify McGrath's multiblock copolymer having the chemical structure shown above, and would have been motivated to do so because Fuller teaches that a polymer containing their segment is useful for conductive polymeric coating compositions (col. 1, lines 5-6) and provides for the benefit of conductive polymers with high mechanical stability, high wear resistance (col. 5, lines 65-67), low surface energy (col. 6, lines 1-2), and resistance to oxidation (col. 6, lines 4-5), which are important for proton exchange membranes, ion-exchange resins, polymer electrolyte membranes, and fuel cells.

Claims 4-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over McGrath et al (US PG Pub 2002/0091225 A1, hereafter McGrath) and further in view of Fuller et al (US Patent No. 5,976,418, hereafter Fuller).

Regarding Claims 4 and 8, McGrath teaches a proton exchange membrane (par. 0015) comprising a multiblock copolymer (par. 0015; 0040) that has the formula



(par. 0044), where Y is $-SO_2-$ (par. 0045), Z is $-C(CF_3)_2-$ (par. 0045), n/n+m ranges from about 0.001 to about 1 (par. 0025), and (n+m)/k = 1.01 (par. 0044), which reads on the claimed multiblock copolymer comprising one hydrophobic segment that includes a fluorinated group and at least one hydrophilic segment that is sulfonated. McGrath teaches that the membrane has a mean humidity of about 35% (par. 0084, 0090), and has proton conductivity in a range of at least 0.005 S/cm (par. 0055).

McGrath does not teach that the hydrophobic segment of the multiblock copolymer includes a fluorinated aromatic or a perfluorinated aromatic. However, Fuller teaches a segment with the chemical structure  (col. 36, lines 5-15), wherein n is 120 or greater than 1 (col. 36, line 17; col. 9, line 32), which reads on the claimed hydrophobic segment that includes a fluorinated aromatic that is perfluorinated. Fuller teaches that their polymer is present in a conductive polymeric composition (col. 1, lines 5-7). Since McGrath in view of Fuller renders obvious all of the claimed ingredients, process steps, and process conditions of the composition according, the claimed co-continuous morphology of hydrophobic and hydrophilic segments would intrinsically be achieved by the composition as claimed and rendered

obvious. If it is the applicant's position that this would not be the case: (1) evidence would need to be presented to support the applicant's position; and (2) it would be the Examiner's position that the application contains inadequate disclosure and there is no teaching as to how to obtain the claimed co-continuous morphology of hydrophobic and hydrophilic segments with only the claimed ingredients, process steps, and process conditions. McGrath and Fuller are analogous art because both references are in the same field of endeavor of polyarylene ether polymeric materials that are fluorinated and that are used in articles where electron flow or conductivity and resistance to oxidation is important. At the time of the invention, a person of ordinary skill in the art would have found it obvious to use Fuller's hydrophobic segment that includes a fluorinated aromatic that is perfluorinated to substitute for McGrath's hydrophobic segment that includes a fluorinated group in McGrath's multiblock copolymer, and would have been motivated to do so because Fuller teaches that a polymer containing their segment is useful for conductive polymeric coating compositions (col. 1, lines 5-6) and provides for the benefit of conductive polymers with high mechanical stability, high wear resistance (col. 5, lines 65-67), low surface energy (col. 6, lines 1-2), and resistance to oxidation (col. 6, lines 4-5), which are important for proton exchange membranes such as that of McGrath (par. 0015).

Regarding Claim 5, McGrath teaches that the mean humidity is about 35% (par. 0084, 0090).

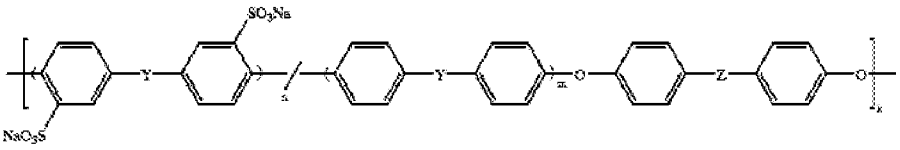
Regarding Claim 6, McGrath teaches that the proton conductivity is in a range of at least 0.005 S/cm (par. 0055, line 11).

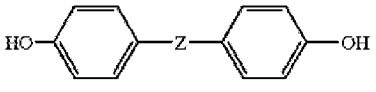
Regarding Claim 7, McGrath teaches that the mean humidity is about 35% (par. 0084, line 5) and the proton conductivity is in a range of at least 0.005 S/cm (par. 0055, line 11).

Regarding Claim 9, McGrath teaches that the hydrophilic segment is disulfonated (par. 0015, 0044).

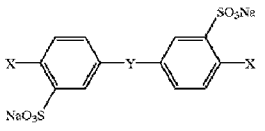
Claims 10 and 14-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over McGrath et al (US PG Pub 2002/0091225 A1, hereafter McGrath) and further in view of Fuller et al (US Patent No. 5,976,418, hereafter Fuller).

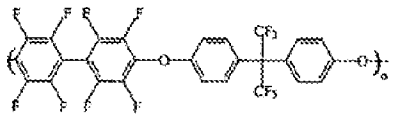
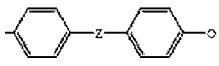
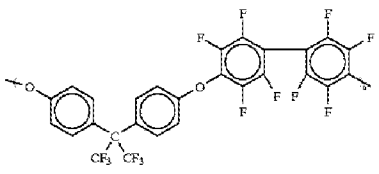
Regarding claims 10, 17, 19, and 20, McGrath teaches a method of making a multiblock copolymer (par. 0044) that has the formula



(par. 0044), where Y is $-SO_2-$ (par. 0045), Z is $-C(CF_3)_2-$ (par. 0045), n/n+m ranges from about 0.001 to about 1 (par. 0025), and (n+m)/k = 1.01 (par. 0044), which reads on the claimed multiblock copolymer comprising at least two fluorinated hydrophobic segments and at least two disulfonated hydrophilic segments. McGrath teaches that method comprises the step of: reacting at least one fluorinated block that includes a fluorinated group and that has the formula 

(par. 0044), wherein Z is $-C(CF_3)_2-$ (par. 0045) with at least one sulfonated block that is disulfonated, contains two leaving groups, and that

has the formula  (par. 0044, 0045) in a condensation reaction to form a multiblock copolymer (par. 0044, Scheme 1). McGrath teaches that the multiblock copolymer exhibits microphase separation (par. 0085) due to the amphiphillic nature of the multiblock copolymer (par. 0109). McGrath's microphase separation (par. 0085, 0109) reads on the applicant's definition of co-continuous morphology recited in their specification (p. 6, lines 9-11), which therefore reads on the claimed co-continuous morpohology of hydrophobic and hydrophilic segments. McGrath's structure for the multiblock copolymer reads on the claimed structure having the block with the subscript m, where M+ is a positively charged counterion consisting of sodium, and reads on the claimed ranges of m and n, and on b representing connection of respective blocks.

McGrath does not teach that the fluorinated block includes a fluorinated aromatic and does not teach that the multiblock copolymer has a chemical structure with the perfluorinated block  or that the fluorinated block is a perfluorinated block since McGrath's multiblock copolymer has the fluorinated segment  instead (par. 0045; see Z may be, -$C(CF_3)_2$-, par. 0045). However, Fuller teaches a block with the chemical structure  (col. 36, lines 5-15), wherein n is 120 or greater than 1 (col. 36, line 17; col. 9, line 32), which reads on the claimed fluorinated block that includes a fluorinated aromatic and that is a

perfluorinated block, and which reads on the claimed range of n. Since McGrath in view of Fuller renders obvious all of the claimed ingredients, process steps, and process conditions of the composition according, the claimed co-continuous morphology of hydrophobic and hydrophilic segments would intrinsically be achieved by the composition as claimed and disclosed or rendered obvious. If it is the applicant's position that this would not be the case: (1) evidence would need to be presented to support the applicant's position; and (2) it would be the Examiner's position that the application contains inadequate disclosure and there is no teaching as to how to obtain the claimed co-continuous morphology of hydrophobic and hydrophilic segments with only the claimed ingredients, process steps, and process conditions. McGrath and Fuller are analogous art because both references are in the same field of endeavor of polyarylene ether polymeric materials that are fluorinated and that are used in articles where electron flow or conductivity and resistance to oxidation is important. At the time of the invention, a person of ordinary skill in the art would have found it obvious to use Fuller's fluorinated block that includes a fluorinated aromatic and that has the formula shown above to substitute for McGrath's fluorinated block that includes a fluorinated group and that has the formula shown above in McGrath's method, such that Fuller's fluorinated block has the -OH end-groups of McGrath's fluorinated block and such that Fuller's fluorinated block that has the formula shown above is substituted in place of the fluorinated segment in McGrath's multiblock copolymer that has the formula shown above, and would have been motivated to do so because Fuller teaches that a polymer containing their segment is useful for conductive polymeric coating compositions (col. 1,

lines 5-6) and provides for the benefit of conductive polymers with high mechanical stability, high wear resistance (col. 5, lines 65-67), low surface energy (col. 6, lines 1-2), and resistance to oxidation (col. 6, lines 4-5), which are important for proton exchange membranes such as that of McGrath (par. 0015).

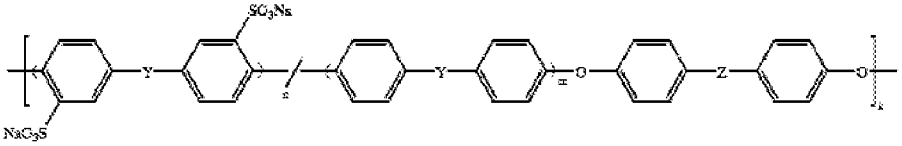
Regarding claims 14 and 15, McGrath teaches k fluorinated blocks, n sulfonated blocks, and m blocks of another block are reacted in the condensation reaction (par. 0044, Scheme 1; par. 0045), wherein n/n+m ranges from 0.001 to about 1 (par. 0016), and (n+m)/k is 1.01 (par. 0044, Scheme 1), which reads on more than one fluorinated block and more than one sulfonated blocks. McGrath also teaches the sulfonated block can comprise combinations of the groups -S-, -SO-, -SO2-, -CO-, and –P(O)(C6H5)- (par. 0045, lines 1-3), which reads on more than one sulfonated block. McGrath also teaches that the reactants in the condensation reaction may comprise as the aromatic group, combinations of phenyl, napthyl, and terphenyl groups (par. 0045, lines 12-15), which reads on more than one fluorinated block and more than one sulfonated block.

Regarding claim 16, McGrath teaches the multiblock copolymer is used in proton exchange membranes for fuel cells (par. 0003) and that proton exchange membranes may be formed from the multiblock copolymer (par. 0054), which reads on forming a polymer electrolyte membrane. It is therefore intrinsic that a sufficient number of blocks are used in the condensation reaction to form a polymer electrolyte membrane.

Regarding claim 18, McGrath teaches the sulfonated block is disulfonated (par. 0044).

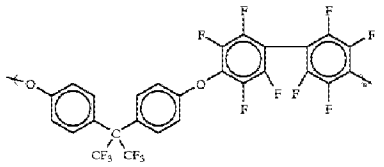
Claims 22-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over McGrath et al (US PG Pub 2002/0091225 A1, hereafter McGrath) and further in view of Fuller et al (US Patent No. 5,976,418, hereafter Fuller).

McGrath teaches an ion-exchange resin (see ion exchange membranes, par. 0054) comprising a multiblock copolymer (par. 0015; 0040) that has the formula



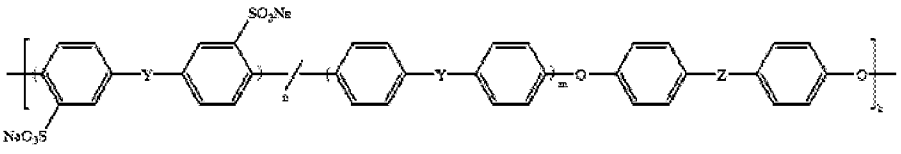
(par. 0044), where Y is $-SO_2-$ (par. 0045), Z is $-C(CF_3)_2-$ (par. 0045), n/n+m ranges from about 0.001 to about 1 (par. 0025), and (n+m)/k = 1.01 (par. 0044), which reads on the claimed multiblock copolymer comprising at least one fluorinated hydrophobic segment that includes a fluorinated group and at least one sulfonated hydrophilic segment. McGrath teaches that the multiblock copolymer exhibits microphase separation (par. 0085) due to the amphiphillic nature of the multiblock copolymer (par. 0109). McGrath's microphase separation (par. 0085, 0109) reads on the applicant's definition of co-continuous morphology recited in their specification (p. 6, lines 9-11), which therefore reads on the claimed co-continuous morpohology of hydrophobic and hydrophilic segments. McGrath teaches that the sulfonated hydrophilic segment is disulfonated (par. 0013, 0044). McGrath's formula shown above reads on the claimed at least one hydrophilic segment being disulfonated poly(arylene ether sulfone) segments.

McGrath does not teach that the fluorinated hydrophobic segment of the multiblock copolymer includes a fluorinated aromatic, or that it is a perfluorinated ether, or that it is a perfluorinated poly(arylene ether). However, Fuller teaches a segment with

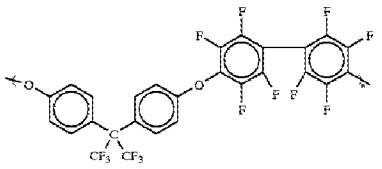
the chemical structure  (col. 36, lines 5-15), wherein n is 120 or greater than 1 (col. 36, line 17; col. 9, line 32), which reads on the claimed fluorinated hydrophobic segment that includes a fluorinated aromatic, and which reads on the claimed fluorinated hydrophobic segment being a perfluorinated ether and a perfluorinated poly(arylene ether). Fuller teaches that their polymer is present in a conductive polymeric composition (col. 1, lines 5-7). Since McGrath in view of Fuller renders obvious all of the claimed ingredients, process steps, and process conditions of the composition according, the claimed co-continuous morphology of hydrophobic and hydrophilic segments would intrinsically be achieved by the composition as claimed and rendered obvious. If it is the applicant's position that this would not be the case: (1) evidence would need to be presented to support the applicant's position; and (2) it would be the Examiner's position that the application contains inadequate disclosure and there is no teaching as to how to obtain the claimed co-continuous morphology of hydrophobic and hydrophilic segments with only the claimed ingredients, process steps, and process conditions. McGrath and Fuller are analogous art because both references are in the same field of endeavor of polyarylene ether polymeric materials that are fluorinated and that are used in articles where electron flow or conductivity and resistance to oxidation is important. At the time of the invention, a person of ordinary skill in the art would have found it obvious to use Fuller's fluorinated hydrophobic segment that includes a fluorinated aromatic and that is a perfluorinated ether and a perfluorinated oply(arylene ether) to substitute for McGrath's fluorinated hydrophobic

segment that includes a fluorinated group in McGrath's multiblock copolymer, and would have been motivated to do so because Fuller teaches that a polymer containing their segment is useful for conductive polymeric coating compositions (col. 1, lines 5-6) and provides for the benefit of conductive polymers with high mechanical stability, high wear resistance (col. 5, lines 65-67), low surface energy (col. 6, lines 1-2), and resistance to oxidation (col. 6, lines 4-5), which are important for ion-exchange resins such as that of McGrath (par. 0054).

Claims 26-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over McGrath et al (US PG Pub 2002/0091225 A1, hereafter McGrath) in view of Fuller et al (US Patent No. 5,976,418, hereafter Fuller) and Encyclopedia Britannica (Encyclopedia Britannica, 2009, "fuel cell", retrieved July 22, 2009 from Encyclopedia Britannica Online, http://www.search.eb.com/eb/article-9106045).

McGrath teaches a fuel cell comprising: a polymer electrolyte membrane (see proton exchange membranes in fuel cells, par. 0054) comprising a multiblock copolymer that has the formula  (par. 0044), where Y is $-SO_2-$ (par. 0045), Z is $-C(CF_3)_2-$ (par. 0045), n/n+m ranges from about 0.001 to about 1 (par. 0025), and (n+m)/k = 1.01 (par. 0044), which reads on the claimed multiblock copolymer comprising at least one fluorinated hydrophobic segment that includes a fluorinated group and at least one sulfonated hydrophilic segment that is disulfonated and that is disulfonated poly(arylene ether sulfone).

McGrath does not teach that the fluorinated hydrophobic segment of the multiblock copolymer includes a fluorinated aromatic, or that it is a perfluorinated ether. However, Fuller teaches a segment with the chemical structure



(col. 36, lines 5-15), wherein n is 120 or greater than 1 (col. 36, line 17; col. 9, line 32), which reads on the claimed fluorinated hydrophobic segment that includes a fluorinated aromatic, and which reads on the claimed fluorinated hydrophobic segment being a perfluorinated ether and perfluorinated poly(arylene ether).

McGrath does not teach an anode and a cathode. At the time of the invention, a person of ordinary skill in the art would have found it obvious to use an anode and a cathode to modify McGrath's fuel cell comprising a polymer electrolyte membrane comprising a multiblock copolymer, and would have been motivated to do so because to be operable, a fuel cell must comprise an anode and a cathode as taught in Encyclopedia Britannica (p. 1).

Response to Arguments

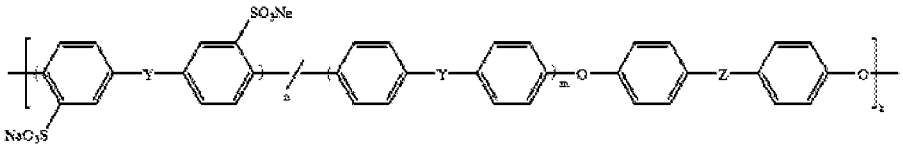
Applicant's arguments, see p. 6, par. 2, filed 02/04/2010, with respect to the objection to claim 2 under 37 CFR 1.75(c) have been fully considered and are persuasive. The objection to claim 2 under 37 CFR 1.75(c) has been withdrawn.

Applicant's arguments, see p. 6, par. 4, filed 02/04/2010, with respect to the objection to claim 19 under 37 CFR 1.75(c) and the rejection of claim 19 under 35

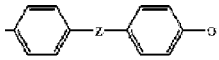
U.S.C. 112, second paragraph, have been fully considered and are persuasive. The objection to claim 2 under 37 CFR 1.75(c) and the rejection of claim 19 under 35 U.S.C. 112, second paragraph, have been withdrawn.

Applicant's arguments with respect to claims 4-7, 9-16, 18, 22, and 23 have been considered (see p. 7, par. 2; p. 8, par. 2; p. 9, par. 2-3) but are moot in view of the new ground(s) of rejection.

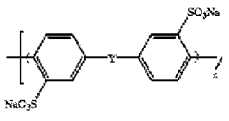
Applicant's arguments filed 02/04/2010 have been fully considered but they are not persuasive. In response to the applicant's arguments that McGrath does not teach or suggest a multiblock copolymer having hydrophilic sulfonate groups and hydrophobic blocks or regions or having a fluorinated hydrophobic segment or block and a sulfonated hydrophilic segment or block (see p. 7, par. 3; p. 8, par. 3; p. 9, par. 4), McGrath teaches a multiblock copolymer (par. 0015; 0040) having the formula



(par. 0044), Y is $-SO_2-$ (par. 0045), Z is $-C(CF_3)_2-$ (par. 0045), n/n+m ranges from about 0.001 to about 1 (par. 0025), and (n+m)/k = 1.01 (par. 0044), which reads on the claimed multiblock copolymer comprising one hydrophobic segment that includes a fluorinated group and at least one hydrophilic segment that is sulfonated since McGrath's segment



(par. 0045; see Z may be, $-C(CF_3)_2-$, par. 0045) is a hydrophobic

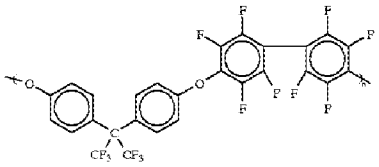
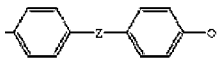
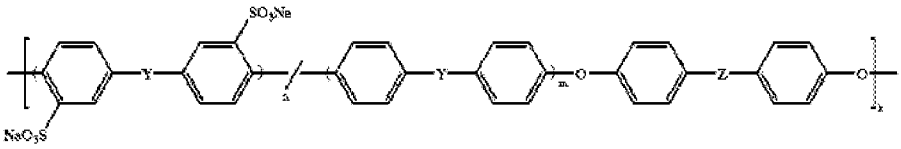
segment that includes a fluorinated group and McGrath's segment  (par. 0044, 0045) is a hydrophilic segment that is sulfonated.

In response to the applicant's argument that par. 0084 of McGrath refers to the humidity used when the material is analyzed with atomic force microscopy and has nothing to do with the mean humidity of the polymer (see p. 7, par. 4), claim 4 does not recite the conditions under which the membrane has a mean humidity of from 10% to 80%, and only recites "the membrane" "has a mean humidity in a range of from 10% to 80%", which can be interpreted as the membrane having a mean humidity in a range of from 10% to 80% at a given condition or in a given situation. McGrath teaches that samples were imaged in relative humidity of about 35% (par. 0084), wherein the samples are McGrath's proton exchange membranes (par. 0080), which means that since the proton exchange membrane is in an environment having a relative humidity of about 35%, the proton exchange membrane has a mean humidity of 35%.

In response to the applicant's argument that McGrath lacks the co-continuous morphology requirement of claim 4 wherein fluorinated hydrophobic segments and sulfonated hydrophilic segments are together in a co-continuous morphology (see p. 7, par. 6; p. 8, par. 3; p. 9, par. 4), McGrath teaches fluorinated hydrophobic segments and sulfonated hydrophilic segments are together (par. 0044) as explained two paragraphs above, and that the multiblock copolymer exhibits microphase separation (par. 0085) due to the amphiphillic nature of the multiblock copolymer (par. 0109). McGrath's microphase separation (par. 0085, 0109) reads on the applicant's definition of co-

continuous morphology recited in their specification (p. 6, lines 9-11). When the Examiner stated in the Office Action mailed 08/06/2009 that "McGrath teaches that the proton exchange membrane comprises the multiblock copolymer (par. 0020), which reads on the claimed wherein the membrane has co-continuous morphology of hydrophobic and hydrophilic segments", the Examiner meant that since McGrath teaches all of the claimed ingredients, process steps, and process conditions of the composition according to claim 4 as filed, and since McGrath in view of Fuller renders obvious all of the claimed ingredients, process steps, and process conditions of the composition according to amended claim 4, the claimed co-continuous morphology of hydrophobic and hydrophilic segments would intrinsically be achieved by the composition as claimed and disclosed or rendered obvious. If it is the applicant's position that this would not be the case: (1) evidence would need to be presented to support the applicant's position; and (2) it would be the Examiner's position that the application contains inadequate disclosure and there is no teaching as to how to obtain the claimed co-continuous morphology of hydrophobic and hydrophilic segments with only the claimed ingredients, process steps, and process conditions.

In response to the applicant's argument that it is incorrect to conclude that one of ordinary skill in the art would mix and match chemicals from McGrath and Fuller to come up with the claimed invention (see p. 8, par. 1), when the Examiner stated in the Office Action mailed 08/06/2009 that "at the time of the invention, a person of ordinary skill in the art would have found it obvious to use Fuller's perfluorinated polymer to modify McGrath's multiblock copolymer comprising a disulfonated block" (p. 8), the

Examiner meant that it would have been obvious to use Fuller's perfluorinated block polymer having the chemical structure  (col. 36, lines 5-15) to substitute for McGrath's fluorinated segment having the chemical structure  (par. 0045; see Z may be, -$C(CF_3)_2$-, par. 0045) in McGrath's multiblock copolymer having the chemical structure  (par. 0044). The motivation for doing so is that Fuller teaches that a polymer containing their segment is useful for conductive polymeric coating compositions (col. 1, lines 5-6) and provides for the benefit of conductive polymers with high mechanical stability, high wear resistance (col. 5, lines 65-67), low surface energy (col. 6, lines 1-2), and resistance to oxidation (col. 6, lines 4-5), which are important for proton exchange membranes, ion-exchange resins, polymer electrolyte membranes, and fuel cells. In addition, McGrath and Fuller are analogous art because both references are in the same field of endeavor of polyarylene ether polymeric materials that are fluorinated and that are used in articles where electron flow or conductivity and resistance to oxidation is important. Specifically, Fuller teaches that their polymer is present in a conductive polymeric composition (col. 1, lines 5-7). McGrath teaches that their multiblock copolymer is present in a composition for a proton exchange membrane, fuel cell, or ion exchange membrane (par. 0003).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID KARST whose telephone number is (571)270-7732. The examiner can normally be reached on Monday-Friday, 7:30 AM-5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on (571)272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mark Eashoo/
Supervisory Patent Examiner, Art Unit 1796

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